

ABSTRACT

A portal frame 3 made of wide flange sections without braces is fixed to the external surfaces of an existing RC-column 5 extending in the vertical direction and to the external surfaces of existing RC-beam 8 extending in the horizontal direction of a reinforced concrete building. The wide flange section column 4 fixed to the existing RC-column 5 is assigned a bending rigidity roughly equivalent to that of the existing RC-column 5, thereby reducing the stress additionally occurring at the connecting part between the existing RC-column 5 and column 4 by deforming the column 4 similarly to the existing RC-column 5 under the horizontal load transmitted from existing RC-beam 8 and/or wide flange section beam 6 during an earthquake. Using a steel portal frame without braces preserves the building appearance and avoids bracing which may block windows while increasing earthquake resistance.